

REMARKS

Applicant appreciates that Examiner's indication that claims 26 and 27 are directed to allowable subject matter. Additionally, in the Office Action, the Examiner rejects claims 1-9 under the doctrine of obviousness-type double patenting based on U.S. Patent No. 6,847,867; rejects claims 10, 12, 13, 17, 23-25, and 28 under 35 U.S.C. § 102(e) based on U.S. Published Patent Application 2003/0137930 to Futernik ("Futernik"); rejects claims 18 and 20-22 under 35 U.S.C. § 103(a) based on U.S. Published Patent Application 2004/0192197 to Capots et al. ("Capots") in view of U.S. Patent No. 6,661,996 to Wiedeman et al. ("Wiedeman"); rejects claim 19 under 35 U.S.C. § 103(a) based on Capots and Wiedeman, and further in view of U.S. Published Patent Application 2003/0147142 to Biswas et al. ("Biswas"); and rejects claims 11 and 14-16 under 35 U.S.C. § 103(a) based on Futernik in view of U.S. Patent No. 6,839,519 to Kleiner ("Kleiner").

Applicant cancels claims 18-22 without prejudice or disclaimer, amends claims 10 and 23 to improve form, and adds new claims 29 and 30. No new matter has been added by way of the present amendment. Support for certain of the amendments to claims 10 and 23, and for new claims 29 and 30 can be found at, for example, paragraph 0039 of the specification.

The rejections of claims 18-22 are obviated by virtue of the cancellation of these claims.

Further, claim 26, which the Examiner indicated as reciting subject matter allowable over the prior art of record, has been amended into independent form, and now substantially includes the features of the claims from which it depended. Accordingly, Applicant submits that claim 26, and its dependent claim 27, are allowable over the prior art of record.

Double Patenting Rejection

Claims 1-9 stand rejected under the judicially-created doctrine of obviousness-type double patenting over claim 1 of U.S. Patent No. 6,847,867. (Office Action, page 3.) While not acquiescing in the Examiner's rejection, but to expedite prosecution, Applicant submits herewith a timely-filed terminal disclaimer. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-9 under the judicially-created doctrine of obviousness-type double patenting.

*Rejection Under 35 U.S.C. § 102(e)
Based on Futernik*

Claims 10, 12, 13, 17, 23-25, and 28 stand rejected under 35 U.S.C. § 102(e) based on Futernik. For the following reasons, Applicant respectfully traverses this rejection.

A proper rejection under 35 U.S.C. § 102 requires that a single reference teach every aspect of the claimed invention. Any feature not directly taught must be inherently present. In other words, the identical invention must be shown in as complete detail as contained in the claim. See M.P.E.P. § 2131. Futernik does not disclose the combination of features recited in claims 10, 12, 13, 17, 23-25, and 28.

Amended claim 10, for example, is directed to a method of adding a satellite into a satellite network. The method includes measuring position data of the satellite; determining, at the satellite, an orbital location of the satellite based on the measured position data; selecting a ground station with which to communicate based on the determined orbital location; receiving, from the selected ground station, at least one of location and orbital information of other satellites in the satellite network; and transmitting, by the satellite, the location of the satellite to the selected ground station to add the satellite to the satellite network.

Futernik does not disclose or suggest, for example, as recited in amended claim 10, measuring position data of the satellite. Futernik is generally directed to a communication network that includes ground stations and a plurality of satellites. (Futernik, Abstract.) Futernik further discloses that network topology may change due to the known movement of satellites and that such topology changes may be used to predict links becoming disabled in the network. (Futernik, Abstract and paragraphs 0027 and 0033.)

Futernik, however, clearly does not disclose measuring position data of a satellite, as recited in amended claim 10. If anything, Futernik's disclosure of monitoring network topology change based on *a priori* knowledge of satellite locations, (see Futernik, paragraph 0033), teaches away from measuring position data of a satellite, as recited in claim 10.

Claim 10 further recites determining, at the satellite, an orbital location of the satellite based on the measured position data. Futernik also does not disclose this feature of claim 10. At least

because Futernik does not mention position data of a satellite, Futernik could not possibly disclose determining, at the satellite, an orbital location of the satellite based on the measured position data.

Amended claim 10 further recites transmitting the location of the satellite to a selected ground station to add the satellite to the satellite network. Futernik also does not disclose this aspect of claim 10. The Examiner cited paragraphs 0033 through 0035 of Futernik as being relevant to this feature of the unamended version of claim 10 (prior to the current amendments of claim 10). This section of Futernik describes operation of topology prediction module 38 in determining when a crosslink, downlink, or uplink in the satellite network is about to become disabled. Futernik appears to use this information to “enables new routes to be determined and utilized for current routes that become disabled due to the disabled link.” (Futernik, paragraph 0033.) Nowhere does Futernik disclose or suggest, however, transmitting, by the satellite, the location of the satellite to the selected ground station to add the satellite to the satellite network. Futernik, does not disclose or suggest a satellite that transmits its location to a selected ground station. Further, because Futernik appears to be wholly concerned with optimizing routing over links with satellites that are already in the satellite network, it is clear that Futernik does not disclose or suggest adding a satellite to a satellite network as recited in claim 10.

For at least these reasons, Applicant submits that Futernik does not disclose or suggest each of the features of claim 10 and the rejection of this claim should therefore be withdrawn. The rejections of claims 12, 13, and 17 should also be withdrawn, at least by virtue of the dependency of these claims from claim 10.

Independent claim 23 and its dependent claims 24 and 25 also stand rejected under 35 U.S.C. § 102(e) based on Futernik.

Claim 23 is directed to a method of operating a satellite network including backbone satellites. The method includes receiving position information from the backbone satellites, the position information being calculated by the backbone satellites based on data measured by the backbone satellites; calculating network topology information based on the position information; and creating inter-satellite links, via directional transmitters/receivers, between the backbone satellites based on the network topology information; and communicating packet data through the satellite network over the inter-satellite links.

Futernik does not disclose or suggest each of the features recited in claim 23. Futernik, for example, does not disclose or suggest receiving position information from the backbone satellites, the position information being calculated by the backbone satellites based on data measured by the backbone satellites, as recited in claim 23.

As discussed with respect to claim 10, Futernik is generally directed to a communication network that includes ground stations and a plurality of satellites. Futernik discloses that network topology may change due to the known movement of satellites and that such topology changes may be used to predict links becoming disabled in the network. (Futernik, Abstract and paragraphs 0027 and 0033.) Futernik, however, does not disclose receiving position information that is calculated by backbone satellites based on data measured by the backbone satellites.

If anything, Futernik's disclosure of monitoring network topology change based on *a priori* knowledge of satellite locations, (see Futernik, paragraph 0033), teaches away from position information calculated based on data measured by backbone satellites.

For at least these reasons, Applicant submits that Futernik does not disclose or suggest each of the features of claim 23 and the rejection of this claim should therefore be withdrawn. The rejections of claims 24 and 25 should also be withdrawn, at least by virtue of the dependency of these claims from claim 23.

Independent claim 28 also stands rejected under 35 U.S.C. § 102(e) based on Futernik.

Claim 28 is directed to a satellite comprising means for determining an orbital location of the satellite; means for selecting a ground station with which to communicate based on the determined orbital location; means for receiving at least one of location and orbital information of other satellites in the satellite network; and means for transmitting the location of the satellite to the selected ground station.

Futernik does not disclose or suggest each of the features recited in claim 28. Futernik, for example, does not disclose or suggest a satellite that includes means for determining an orbital location of the satellite. In rejecting claim 28, the Examiner cites paragraphs 0027 and 0034 as being relevant to this feature of claim 28. (Office Action, page 5.) These sections of Futernik disclose:

The present invention basically utilizes the features of the OSPF routing protocol and apriori knowledge of network topology (e.g., as a function of time or satellite geographical location) to enhance routing performance. The network topology knowledge enables the OSPF protocol to adjust a routing table prior to links becoming disabled due to changing satellite positions. The routing table adjustment essentially prevents the Internet Protocol from routing data packets to disabled links, thereby avoiding loss of those data packets.

(Futernik, paragraph 0027.)

The apriori knowledge relating to link disablement is typically stored in a look-up table accessible by the topology prediction module. The table generally includes information relating to satellite geographic position, time and link status (e.g., enabled or disabled). However, the look-up table may include any desired information. The information is generally provided for a predetermined time interval (e.g., two hours) corresponding to satellite orbits, and is repeatedly utilized for subsequent intervals. The topology prediction module accesses the look-up table information to predict disablement of links for route computation by the OSPF protocol as described below.

(Futernik, paragraph 0034.) These sections of Futernik relate to using *a priori* knowledge of network topology to enhance routing performance. Neither these sections, however, nor any other section of Futernik, discloses a satellite that includes means for determining an orbital location of the satellite.

Claim 28 further recites means for transmitting the location of the satellite to the selected ground station. Futernik also does not disclose or suggest this aspect of claim 28. As discussed above with respect to claim 10, Futernik describes operation of topology prediction module 38 in determining when a crosslink, downlink, or uplink in the satellite network is about to become disabled. Nowhere does Futernik disclose or suggest, however, a satellite that includes, in addition to the other features recited in claim 28, means for transmitting the location of the satellite to the selected ground station.

For at least these reasons, Applicant submits that Futernik does not disclose or suggest each of the features of claim 28 and the rejection of this claim should therefore be withdrawn.

*Rejection Under 35 U.S.C. § 103(a)
Based on Futernik and Kleiner*

Claims 11 and 14-16 stand rejected under 35 U.S.C. § 103(a) based on Futernik and Kleiner. Applicant has reviewed Kleiner, and submits that Kleiner does not cure the deficiencies of Futernik as discussed above with respect to claim 10. Accordingly, at least by virtue of the dependency of these claims from claim 10, Applicant submits that the rejection of these claims is improper and should be withdrawn.

New Claims

New claims 29 and 30 include features which are not disclosed or suggested by the prior art of record. Claim 29, for example, recites that the position data includes Doppler shift information measured by the satellite. Futernik, for example, does not disclose or suggest this feature.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of the application and the timely allowance of the pending claims.

As Applicant's remarks with respect to the Examiner's rejections overcome the rejections, Applicant's silence as to certain assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections (e.g., whether a reference constitutes prior art, motivation to combine references, etc.) is not a concession by Applicant that such assertions are accurate or that such requirements have been met, and Applicant reserves the right to dispute these assertions/requirements in the future.

If the Examiner believes that the application is not now in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned to discuss any outstanding issues.

Application No. 10/625,991
Amendment dated May 7, 2007
Reply to Office Action of February 9, 2007

Docket No.: BBNT-P01-036

Applicant believes no fee is due with this response other than as reflected on the enclosed Amendment Transmittal. However, if a fee is due, please charge our Deposit Account No. 18-1945, under Order No. BBNT-P01-036 from which the undersigned is authorized to draw.

Dated: May 7, 2007

Respectfully submitted,

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